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Kenneth A. Nelson
Registered Patent Attorney
Voice: 602-364-7280
KANELSON@BRYANCAVE.COM

VIA EXPRESS MAIL

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Bryan Cave LLP
One Renaissance Square
Two North Central Avenue
Suite 2200
Phoenix, AZ 85004-4406
Tel (602) 364-7000
Fax (602) 364-7070
www.bryancave.com

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And Bryan Cave,
A Multinational Partnership,
London

Re: U.S. Patent Application Serial No. 10/765,407
Inventor: Toensing
Title: Stake Removal Tool
Docket No.: 0133788

Dear Sir/Madam:

Enclosed herewith for filing in the above-identified application are the following:

1. Transmittal Letter (2 pgs.);
2. Response to Office (16 pgs.);
3. Explanatory Notes on Drawings (4 pgs. + additional figures & photos);
4. Fee Calculation Sheet (2 pgs.);
5. Check no. 33957 in the amount of $60.00; and
6. Self-addressed, prepaid postcard to acknowledge receipt of documents.

Please charge any deficiency in the enclosed fee or credit any overpayment to Deposit Account No. 02-4467.

Very truly yours,

Kenneth A. Nelson

KAN/kew
Enclosure

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	:	Date: February 11, 2005
TOESING	:	
Serial No.: 10/765,407	:	Group Art Unit: 3635
Filed: January 26, 2004	:	Examiner: Dean J. Kramer

For: STAKE REMOVAL TOOL

FEE CALCULATION SHEET

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SIR:

The applicant herewith petitions the Director of the United States Patent and Trademark Office to extend the time for reply to the Office Action dated October 14, 2004 for one month from January 14, 2005 to February 14, 2005.

Submitted herewith is check number 33957 in the amount of $60.00 to cover the cost of the extension. Please charge any deficiencies and credit any overpayments to Account No. 02-4467. This sheet is submitted in triplicate.

Extension for Response within First Month	$60.00
Total Fee Calculation	$60.00

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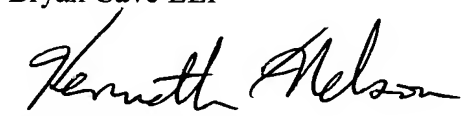
Respectfully submitted,

Bryan Cave LLP



BRYAN CAVE LLP
Two North Central Avenue
Suite 2200
Phoenix, AZ 85004-4406

Kenneth A. Nelson
Attorney for Applicants
Reg. No. 48,677
Tel. (602) 364-7000

Explanatory Notes on Drawings

FIGURE 1

This is an enlarged schematic drawing (2 times full size) of the Ferguson tool geometry in very simple outline form to improve clarity. The illustration shows the tool with the grip roller in the open position—spaced apart from the stake. This open position gives about a 0.040 inch gap between the gripper and the work piece. The goal is to illustrate an important feature of the Ferguson tool geometry, which is such that the Ferguson tool begins its work cycle with the gripper roll eccentricity at the null point with respect to the work object. Starting the work cycle at the null point results in considerable motion of the operating handle (approx. 45 degrees) before the work piece is engaged by the gripper roll.

The Ferguson tool does not suffer as a result of this large operating handle motion because of the type of work the Ferguson tool is intended for—removing posts from concrete footings etc. In fact, the large motion may give Ferguson a slight secondary advantage in that the geometry which produces this amount of handle travel results in a slightly lower touch point angle, which increases gripping force. On the other hand, the same large handle motion if applied to Applicant's tool would represent a great burden, both because of the increase in wear it would impose on the gripper rolls, and also because of the awkward body position it would impose on the operator of the tool. This latter effect is discussed in greater detail below.

The greater motion of the operating handles discussed above is revealed by using the transparent sheet marked Figure 1a. Lay this over the illustration of Figure 1, lining up the points of rotation. Hold the transparent sheet in place by placing a pencil point on the point of rotation, and swing the transparent sheet so the gripper roll reaches the touch point against the stake. Note the travel of the gripper roll handle. It is approximately 45 degrees, as stated above. This is born out by observing the miniature replica of the Ferguson tool as shown in the enclosed photos. Note especially photos 3, 5, and 6, which show that the gripping handles of the Ferguson replica must be swung at least 45 degrees above horizontal in order to close on the stake.

FIGURE 2

This illustration is a similar exercise to that of Figure 1 in that it makes an analysis of the eccentric action of Applicant's tool. A comparison between the geometry of the Ferguson tool

and Applicant's tool is made to draw attention to the fact that there is a significant and useful difference between the two systems for using an eccentric to develop a force for useful work. It is not the amount of gripping force generated which we are focusing on, but the economy of motion of the handles.

Applicant's tool requires a much reduced amount of handle travel when compared to the Ferguson tool, and the utility of this is born out in Figures 3, 4, 5 and 6 in the practical sense of avoiding interference with the ground when using the tool. On Applicant's tool, the actual travel between being open and being fully engaged in gripping the stake is about seven degrees. A somewhat more subtle point of benefit is in the quickness with which the tool operates and the greater ease of operation. These tools in many cases pull over a thousand stakes a day and wasted motion is not welcome.

A further defining difference between these two tools is that the gripper roll of the Ferguson tool incorporates within its own body the eccentrically located hole about which it is free to rotate. On Applicant's tool that is not the case. Instead, Applicant's tool incorporates a gripper roll fixed to the axle by means of a screw through its center. This enables several benefits which are pointed out in the original patent application and are notable for their absence in the Ferguson tool. On the Ferguson tool, for instance, the gripper roll must be replaced in its entirety when the gripper teeth become worn. The eccentric hole in it is in a fixed position and the tooth wear will hence be confined to just one area. With Applicant's gripper roll, wear on its operating surface can be overcome by simply loosening its holding screw and rotating the gripper about 20 degrees, thereby exposing a new surface with which to grip the stake. This can be repeated 18 times for each gripper roll. This is a meaningful virtue in the business of selling small tools, which is a highly competitive trade.

FIGURE 3

This illustration shows Applicant's tool in full size, drawn to scale. The gripper rolls are shown in full engagement with the stake. This illustration depicts what we call the TOUCH POINT of the gripper roll to the stake. This is an important ingredient in the performance of the tool. It is designed to be approximately 22 degrees. It is defined as a line drawn between the point at which the gripper roll makes contact with the stake and the center point of rotation about which the gripper roll rotates. It can vary slightly, but not grossly. It if is too large, there is less

grip on the stake. If too little, the gripping of the stake is needlessly great and sometimes requires the puller to be shaken in order to dislodge the stake after pulling. This is just extra work for the operator.

Also shown is what we have found to be the ideal angle for the handles when lifting work is done. The slight dihedral angle stabilizes the tool. The 10 degrees shown is arbitrary, but not by much. It was established after much testing.

FIGURE 4

Shown here is the same tool as in Figure 3 but in the OPEN position used when beginning the stake removal event and later after it has been removed, to release the stake from the grip of the tool. To begin the pulling of a stake we instruct the operator to simply hold the handles parallel with the ground. This produces the seven-degree angle change mentioned above to clear the stake, plus a little extra for simplicity's sake. It allows the operator to simply walk up to the stake and swing the puller against it, bottoming out on the link plate, then raise the handles by pivoting his wrists. You can do this when only seven or 10 degrees of motion is required, but if 45 degrees were required, as with Ferguson, it becomes very difficult or impossible because the ground gets in the way, as further illustrated in the following figures.

FIGURE 5

This illustration is a hypothetical creation of a stake puller tool made along the lines of Applicant's tool, but incorporating the Ferguson tool geometry to position the gripper rolls. Figure 5 sets the scene, so to speak, showing the tool in the ideal work position with the gripper rolls engaged and the handles above the horizontal by 10 degrees.

FIGURE 6

This figure shows the same tool as in Figure 5, but in the OPEN position where the grippers are spaced apart from the stake. If we subtract the 10 degrees of the handles above the horizontal from the approximately 45 degrees of handle rotation that the Ferguson geometry develops, we still have 35 degrees of downward slant to the handles. This produces the very undesirable result that the operator's hands would be below ground level.

The illustration depicts a very real and typical scenario in the field as far as the amount of stake that typically shows above the ground. For sidewalks and small slabs used in patios etc. the form boards are usually common 2 by 4's. The stakes are usually driven into the ground so the top of the stake is slightly below the top of the form board. This enables them to slide the screed board along the top of the form board to finish the concrete to a flat surface. So the picture shown is a realistic portrayal of a typical jobsite, and the handles of the tool cannot operate under these conditions. If you do some relocating of the components so the handles do not go beneath the ground surface you then end up with a working position where the handles are so slanted upwards that other practical problems present themselves.

Construction Drawings

The drawing schematics are presented for the convenience and information of the examiner. These drawings were prepared by Applicant as a necessary step in the construction of the replica of the Ferguson tool. An examination of the schematics will verify that the Ferguson replica is a substantially exact scale model of the Ferguson tool as it is set forth in the Ferguson reference.